

Chapter 6.4 POLLUTION PREVENTION (P2) and ENVIRONMENTAL MANAGEMENT SYSTEMS

Pollution Prevention

“Pollution prevention” (or P2) is recognized by the US EPA as the most cost-effective form of environmental protection, because it is an environmental management strategy that emphasizes the elimination or reduction of wastes at the source of generation. Whereas traditional waste management techniques such as treatment and disposal concentrate on managing wastes, P2 focuses on the question, “Why are the wastes produced in the first place?”



P2 techniques are proactive approaches and solutions to waste management issues and problems. Categories include process efficiency improvements, materials substitution, inventory control, preventive maintenance, energy and water conservation, in-process recycling, and office waste reduction. These techniques may involve complex capital upgrades for new equipment and computerized automation of monitoring equipment. However, many P2 techniques are as simple as using less-toxic raw materials or changing certain facility procedures.

Cost Savings & Environmental Benefits? Treatment, handling, and disposal of wastes can result in significant financial and labor costs, and involve regulatory and compliance issues. Through P2 techniques, facilities can eliminate or significantly decrease the quantity and/or toxicity of their generated wastes, avoiding the direct costs and long-term liabilities associated with generating and managing those wastes. Source reduction techniques often result in increased production efficiencies which can actually decrease raw material purchasing needs.

Wastes are essentially wasted raw materials, and P2 efforts strive to conserve the use of raw materials by using them as efficiently as possible. In addition, P2 stresses the reduction of toxicity, and prevention of spills and raw material/product losses. P2 is distinguished from recycling and reuse efforts, because these management techniques involve waste handling, collection, and reprocessing into a new raw material or useable product. True P2 eliminates the need and the costs associated with handling wastes.

Going Beyond Compliance. Environmental regulations are legally enforceable standards and rules, which place limits on environmental impacts. However, they are based on a system of “permitted thresholds”, which allow a certain degree of environmental impact. Pollution prevention, although not legally required, provides the opportunity for businesses and others to move beyond compliance; to continually strive to do better, year after year; and move well below the enforceable thresholds of regulations. Cost savings, not regulatory enforcement, drive these voluntary reductions through P2.

Environmental Management Systems

Many forward-thinking companies that understand the value of P2 have realized that the environmental impacts of their operations are not just a by-product of what they do, but an integral part of their business model that affects the very success or failure of their organization. These facilities have embraced the development of “Environmental Management Systems” (EMS’s) to ensure that the environment is considered in all facets of the company’s operations. In addition, a good EMS sets goals for implementation of P2 and other projects that will enable “continuous improvements” in the company’s environmental performance. Theoretically, a facility that continuously improves will move beyond compliance towards a conceptual goal of “no net impact” on the environment.

What Do “P2” & “EMS” Mean for Water Quality? P2 & EMS are good news for water quality. P2 techniques result in the decreased use of materials and decreased generation of wastes. P2 uses a multi-media approach which considers water use and quality as well; and it ensures that air and waste problems are not “solved” by treatment processes that result in impacts to water. P2’s emphasis on source reduction is directly applicable to water use reduction techniques that enable more efficient use, conservation, and reuse. In the case of stormwater runoff, the P2 techniques of “material substitution” and “improved efficiencies” encourage the use of the least toxic pesticides and herbicides and the prudent use of fertilizers and nutrients. EMS’s will ensure that P2 techniques are considered and employed whenever possible as part of the facility’s normal business process. Compliance with water quality standards will be the beginning point for EMS companies, and they will strive to continuously do better than those standards.

DEQ's Office of Pollution Prevention

The Virginia DEQ's Office of Pollution Prevention (OPP) is a non-regulatory program that promotes the use of voluntary pollution prevention approaches and technologies and the use of Environmental Management Systems. OPP has developed a variety of voluntary programs and partnerships to encourage facilities that are interested in doing more than the minimum as required by regulations. These programs provide public recognition and award opportunities, assistance, and even regulatory incentives for participating.

Voluntary Programs



The **Virginia Environmental Excellence Program (VEEP)** is DEQ's program to promote the voluntary use of environmental management systems (EMS) and pollution prevention (P2). VEEP offers recognition and regulatory incentives to encourage facilities to develop and implement an EMS. More than 225 Virginia facilities have been designated as VEEP facilities. For more information, see <http://www.deq.virginia.gov/veep>.



National Partnership for Environmental Priorities is a voluntary program coordinated by EPA that targets the elimination or reduction of wastes that contain the "Waste Minimization Priority Chemicals". These 31 target chemicals are those that EPA has determined to pose the greatest threat to the environment. NPEP targets facilities that generate these wastes and encourages them to commit voluntarily to reduce them. DEQ is responsible for promotion and coordination of this program for Virginia facilities. For more information, see <http://www.epa.gov/epaoswer/hazwaste/minimize/partnership.htm>.



Virginia Hospitals for a Healthy Environment (VH2E) is a partnership to educate Virginia health care professionals about the significant environmental impacts of their industry and the many (P2) opportunities that are available to hospitals and other health care facilities. VH2E facilities are committing to (1) eliminate mercury, (2) reduce wastes, and (3) reduce the toxicity of wastes. For more information, see <http://www.deq.virginia.gov/p2/vh2e>.



Businesses for the Bay (B4B) is a voluntary team of businesses, industries, government facilities and other organizations within the Chesapeake Bay watershed. B4B's goal is to reduce releases of chemical contaminants and nutrients to the Chesapeake Bay through P2. B4B provides mentoring assistance, training, recognition, and award opportunities. There are nearly 700 participating facilities in the Bay watershed, and Virginia has 310 of those. For more information on B4B, reference <http://www.deq.state.va.us/p2/b4b>.



Mercury Reduction Mercury is one of the EPA's targeted "Priority Chemicals", posing a great risk to the environment and the public. The VA DEQ works to promote and coordinate voluntary efforts to reduce or eliminate the use of mercury containing products. DEQ has coordinated a series of reduction efforts for mercury-related industry sectors, such as dental offices, schools laboratories, thermometers, fluorescent lamps, automotive switches, and thermostats. For more, see <http://www.deq.state.va.us/p2/mercury>.



Virginia Green Lodging is the DEQ's initiative to promote pollution prevention (P2) practices in the tourism and hospitality industry. *Green Lodging* encourages hotels, resorts, and other hospitality operations to be aware of their impact on the environment and reduce these impacts. For more, see <http://www.deq.virginia.gov/p2/lodging>.



Virginia Information Source for Energy (VISE) is the DEQ's project to promote energy efficiency, conservation, & renewable energy technologies. DEQ provides for free energy efficiency assessments and maintains a website on energy-related technologies at <http://www.deq.state.va.us/p2/vise>.



The [Virginia Regional Environmental Management System](http://www.deq.state.va.us/p2/vremsrpt.pdf) (VREMS) is an innovative pilot partnership linking federal, state, local, and private facilities in the Richmond regional area that are all in the process of developing Environmental Management Systems (EMSs). VREMS has proven to be a cost-effective, information-sharing tool for its participants; and the structure is now being copied by other regional EMS groups in Virginia and even nationwide. For more on VREMS, see <http://www.deq.state.va.us/p2/vremsrpt.pdf>.

For more information on DEQ's P2 and EMS programs, contact Tom Griffin at 804-698-4545 or rtgriffin@deq.virginia.gov.